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IBM CORPORATION				EXAMINER
PO BOX 12195				COPPOLA, JACOB C
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/637,889	<b>Applicant(s)</b> CHALLENER ET AL.
	<b>Examiner</b> JACOB C. COPPOLA	Art Unit 3621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 August 2008.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 8-11, 14, 15, 39, 40, 51 and 52 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 8-11, 14, 15, 39, 40, 51, and 52 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

*Acknowledgements*

1. This action is in reply to the Amendments and Arguments filed on 20 August 2008.
2. Claims 8-11, 14, 15, 39, 40, 51, and 52 are currently pending and have been examined.
3. This Office Action is given Paper No. 20081202. This Paper No. is for reference purposes only.

*Claim Rejections - 35 USC § 101*

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 8-11 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

6. Regarding claims 8-11:

- a. These claims are directed to neither a “process” or a “machine” but rather embrace or overlap two different statutory classes of invention as set forth in 35 U.S.C. §101. Accordingly, claims 8-11 are rejected under §101.

*Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 8-11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

9. Regarding claims 8-11:

b. These claims are indefinite because they are considered hybrid claims. See MPEP §2173.05(p) II. In particular, the claims are directed to neither a “process” or a “machine” but rather embrace or overlap two different statutory classes of invention as set forth in 35 U.S.C. §101.

c. For example, claim 8 recites “a system... wherein said system comprises a central computer system... a plurality of meters... a database”, etc. In light of this evidence, one of ordinary skill in the art could reasonably interpret these recitations as express intent by Applicants to claim a machine claim. Alternatively, claim 8 recites “a microprocessor *accessing* said data storage” [emphasis added]. One of ordinary skill in the art could also reasonably interpret these recitations as express intent by Applicants to claim a process claim. In light of this conflicting evidence, a person of ordinary skill in the art could reasonably interpret claim 1 to be drawn to either a product or process.

d. Therefore in accordance with §2173.05(p) II which states that a single claim must be drawn to either a product or process (but not both) and because a potential competitor of Applicants would not know whether *possession alone* of the claimed structure constituted infringement, or alternatively, if infringement required the *execution* of the recited method steps, the claims are indefinite. If Applicants overcome this particular 35

U.S.C. §112, 2<sup>nd</sup> paragraph rejection, the related 35 U.S.C. §101 rejection will also be withdrawn.

10. The Examiner finds that because the claims are indefinite under 35 U.S.C. §112, 2<sup>nd</sup> paragraph, it is impossible to properly construe claim scope at this time. However, in accordance with MPEP §2173.06 and the USPTO's policy of trying to advance prosecution by providing art rejections even though these claims are indefinite, the claims are construed and the prior art is applied as much as practically possible.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8-11, 14, 15, 39, 40, 51, and 52, as understood by the Examiner, are rejected under 35 U.S.C. §103(a) as being unpatentable over Villicana et al. (U.S. 6,819,098 B2) ("Villicana"), in view of Wheeler et al. (U.S. 2002/0026575 A1) ("Wheeler").

13. Regarding claim 8:

e. Villicana discloses the following limitations:

- i. *a central computer system (system 100) (fig. 1 with associated text);*
- ii. *a database accessed by said central computer system (data center 103) (fig. 1 with associated text);*

- iii. *a plurality of meters* (utility meters 113) (fig. 1 with associated text);
- iv. *a communication network* (Internet 111) *connecting each meter within said plurality of meters with said central computer system to transmit data to said central computer system* ("a connection via the Internet 111 to system 100 to upload power usage data from meter 113 to system 100 for storage in data center 103) (C2, L39-41);
- v. *said database stores a plurality of data records* ("a data center 103 that includes relational databases in which utility meter acquired data and account information is stored"), *each data record in said plurality of data records includes a meter identifier identifying a meter within said plurality of meters associated with said data record* ("transmit the identification number to database 103 so that the correlation between the identification number and the silicon serial number may be recorded") (C1, L50-60; and C5, L61 - C6, L13);
- vi. *each of said meters includes data storage* ("non-volatile memory" or NVM 205) *and a microprocessor* (controller 201) *accessing said data storage and programmed to transmit a message* (C4, L28-54), *wherein said message includes a data value representing a measured usage of said utility product, over said communication network to said central computer system* (C4, L28-54);
- vii. *said central computer system includes a processor programmed to receive said message* (C4, L28-54);
- viii. *said microprocessor in each meter in said plurality of meters is additionally programmed to transmit, on a periodic basis, to said central*

*computer system, in an unencrypted form, said value representing said measured usage of said utility product (C4, L28-54); and*

ix. *store data derived from said value representing a measured usage of said utility product within said data record including said meter identifier identifying said meter (C4, L28-54; and C5, L61 - C6, L13).*

f. Villicana does not directly disclose the limitations:

x. *each data record includes a public cryptographic key of said meter;*

xi. *each of said meters includes data storage storing a private cryptographic key of said meter;*

xii. *a microprocessor programmed to encrypt a message with said private cryptographic key;*

xiii. *wherein said message includes an alphanumeric value;*

xiv. *information encrypted with said private cryptographic key is decrypted with said public cryptographic key;*

xv. *said central computer system processor is programmed to decrypt the received encrypted message with said public cryptographic key of said meter, said message encrypted with said private cryptographic key, forming a decrypted message, and to compare a version of said alphanumeric value from said decrypted message with unencrypted version of said alphanumeric value;*

xvi. *said microprocessor in each meter in said plurality of meters is additionally programmed to:*

- (1) *generate an ordered sequence of values for use as each said alphanumeric value; and*
- (2) *transmit, on a periodic basis, to said central computer system, a next value from said ordered sequence of values, in both an unencrypted form, and as combined with said value representing said measured usage of said utility product and encrypted with said private cryptographic key; and*

xvii. *said processor within said central computer system is additionally programmed to:*

- (3) *receive said unencrypted form of said value in said ordered sequence of values as unencrypted version of said alphanumeric value;*
- (4) *determine whether said alphanumeric value received as said message follows, within said ordered sequence of values, a value previously transmitted as said alphanumeric value from said meter; and*
- (5) *store data derived from said value representing a measured usage of said utility product within said data record including said meter identifier identifying said meter in response to determining that said decrypted message matches said unencrypted version of said message together with determining that said alphanumeric value follows said value previously transmitted as said alphanumeric value from said meter.*

g. Wheeler, however, teaches the limitations:

xviii. *a data record including a public cryptographic key of a device (fig. 4b with associated text);*

xix. *a plurality of devices, each of said devices includes data storage storing a private cryptographic key of said device (¶ 0109);*

xx. *a microprocessor programmed to encrypt a message with said private cryptographic key (¶¶ 0004, 0114, 0144, 0145, 0148, and 0172);*

xxi. *wherein said message includes an alphanumeric value ("time/date stamp") (¶¶ 0115 and 0172);*

xxii. *information encrypted with said private cryptographic key is decrypted with said public cryptographic key (¶ 0116);*

xxiii. *a central computer system processor is programmed to decrypt the received encrypted message with said public cryptographic key of said device (¶ 0116), said message encrypted with said private cryptographic key (¶ 0114), forming a decrypted message (¶ 0116), and to compare a version of said alphanumeric value from said decrypted message with unencrypted version of said alphanumeric value (¶¶ 0004, 0115, 0116, and 0172);*

xxiv. *said microprocessor in each device in said plurality of devices is additionally programmed to:*

(6) *generate an ordered sequence of values for use as each said alphanumeric value (¶¶ 0115 and 0172); and*

(7) *transmit to said central computer system, a next value from said ordered sequence of values, in both an unencrypted form, and as combined with said message and encrypted with said private cryptographic key (¶ 0004, 0145, and 0172); and*

xxv. *said processor within said central computer system is additionally programmed to:*

(8) *receive said unencrypted form of said value in said ordered sequence of values as unencrypted version of said alphanumeric value (¶ 0114-0116 and 0172);*

(9) *determine whether said alphanumeric value received as said message follows, within said ordered sequence of values, a value previously transmitted as said alphanumeric value from said device (¶ 0115); and*

(10) *determining that said decrypted message matches said unencrypted version of said message together with determining that said alphanumeric value follows said version of said alphanumeric value previously transmitted as said alphanumeric value from said device (¶ 0115).*

h. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to include in the usage reporting method of Villicana the message authentication method as taught by Wheeler since the claimed invention is merely a combination of old elements, and in the combination each element merely

would have performed the same function as it did separately, and one of ordinary skill in the art would have recognized that the results of the combination were predictable.

14. Regarding claim 9:

i. Villicana/Wheeler discloses the limitations of claim 8, as described above.

Villicana/Wheeler, further, discloses the following limitations:

xxvi. *wherein said central computer system is additionally programmed to:*

(11) *read said version of said alphanumeric value previously transmitted from said meter from said data record including said meter identifier identifying said meter* (Villicana, C1, L50-60; and C5, L61 - C6, L13; and Wheeler, ¶0115); *and*

(12) *write said alphanumeric value received as said message to said data record including said meter identifier* (Villicana, C1, L50-60; and C5, L61 - C6, L13; and Wheeler, ¶0115).

15. Regarding claim 10:

j. Villicana/Wheeler discloses the limitations of claim 8, as described above.

Villicana/Wheeler, further, discloses the following limitations:

xxvii. *wherein said central computer system is additionally programmed to receive a transmission over said communication network from an additional meter, to recognize a set up request code transmitted from said additional meter, to receive a meter identifier and a public cryptographic key from said additional meter, and to record said meter identifier and said public cryptographic key*

*received from said additional meter in an additional data record within said database (Villicana, C6, L20+; and Wheeler, ¶ 0118).*

16. Regarding claim 11:

k. Villicana/Wheeler discloses the limitations of claim 8, as described above.

Villicana/Wheeler, further, discloses the following limitations:

*xxviii. a server computer (server 101) having an interface for communicating over a computer network with at least one client computer (computer 117) and accessing said database, wherein said server computer receives data from said client computer including a meter identifier stored in a data record within said database, and said server computer writes data received from said client computer to said data record within said database (Villicana, C3, L60+; C7, L21 - C8, L26; and fig. 7 with associated text).*

17. Regarding claims 14 and 15:

l. These claims encompass substantially the same scope as claims 8 and 9.

Accordingly, claims 14 and 15 are rejected in substantially the same manner as claims 8 and 9, as described above.

18. Regarding claims 39, 40, 51, and 52:

m. These claims are directed to a method and a computer-readable medium of the above system claims and are not patentably distinct. Accordingly, claims 39, 40, 51, and 52 are rejected in substantially the same manner as there corresponding system claims, as described above.

19. The Examiner has pointed out particular references contained in the prior art of record within the body of this action for the convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply. Applicant, in preparing the response, should consider fully the entire reference as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

*Response to Arguments*

20. Regarding claims 8-11, 14, 15, 39, 40, 51, and 52, Applicants on at least p. 12 of the Remarks filed 20 August 2008 (“Remarks”) argue “Villicana and Wheeler do not mention using values from an ordered sequence”. The Examiner respectfully disagrees. As shown above, Wheeler does mention the use of time-stamps, which are values from an ordered sequence.

21. Applicants’ other arguments with respect to claims 8-11, 14, 15, 39, 40, 51, and 52 have been considered but are moot in view of the new grounds of rejection.

*Conclusion*

22. Applicants’ amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 C.F.R. §1.136(a).

23. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. §1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

24. Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to Jacob C. Coppola whose telephone number is (571) 270-3922. The Examiner can normally be reached on Monday-Friday, 9:00 a.m. - 5:00 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew Fischer can be reached at (571) 272-6779.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, please contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Jacob C. Coppola/  
Patent Examiner, Art Unit 3621  
December 3, 2008

/ANDREW J. FISCHER/  
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